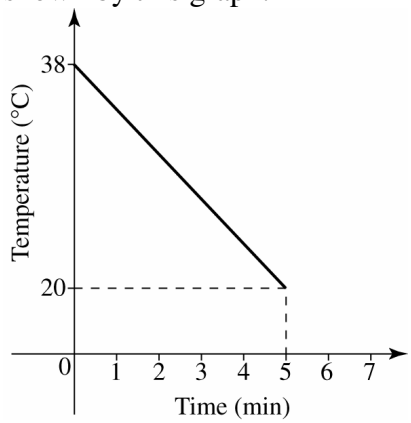
Test Yourself Chapter 7 Modelling linear relationships Name: _____

All Multiple Choice

1 The temperature T of a room t minutes after the air conditioner is turned on is shown by this graph. D



The rule connecting temperature T and time t minutes is:

A $T = -3.6t - 38$
B $T = 3.6t - 38$
C $T = 3.6t + 38$
D $T = -3.6t + 38$

2 A taxi company has its fare meter adjusted to read a fixed charge of $3.50 plus an additional charge of $1.20 for each kilometre. The distance travelled when the taxi fare paid is $9.50 is: C

A 3 km
B 4 km
C 5 km
D 6 km

3 A car rental company charges $100 for the hire of a car plus 20 cents for each kilometre journeyed. The total cost (C) equation for d kilometres journeyed is: B

A $C = 20x + 100$
B $C = 0.20x + 100$
C $C = 0.20x - 100$
D $C = 0.20x$

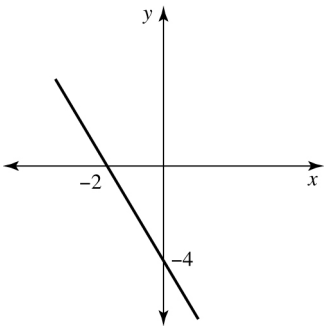
4 The table below shows the conversion of Australian dollars ($A) to British pound sterling (£STG). D

$A	£STG
1000	400
2000	800
3000	1200
4000	1600
5000	2000

Kelly comes back from a British holiday with £1000. The number of Australian dollars that she will receive for this sum of money is:

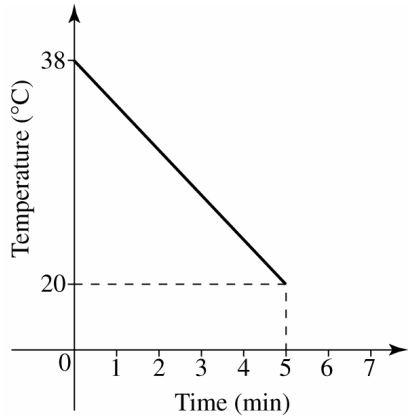
A $400
B $1000
C $1200
D $2500

5 The gradient of the line shown is: A



A -2
B $-\frac{1}{2}$
C $\frac{1}{2}$
D 2

6 The graph drawn below shows the temperature of a room as it cools down once an air conditioner is turned on. B

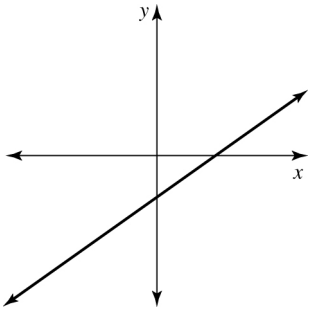


The gradient of the line is:

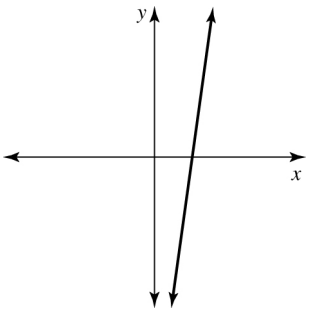
A –4
B –3.6
C 3.6
D 4

7 Which of the graphs drawn below has a negative gradient? D

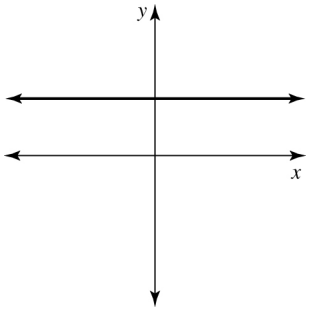
A



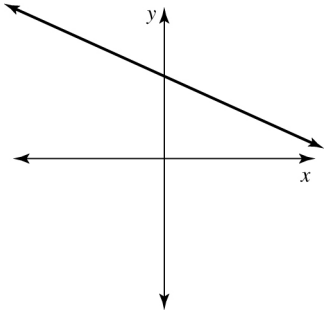
B



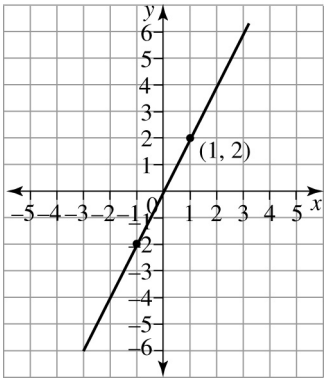
C



D



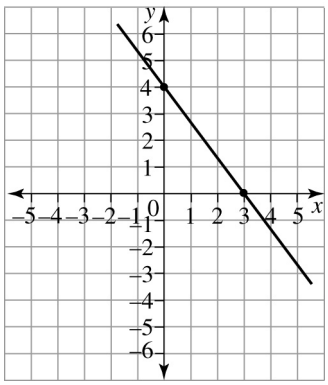
8 D



The gradient of the above graph is:

A –2
B –0.5
C 0.5
D 2

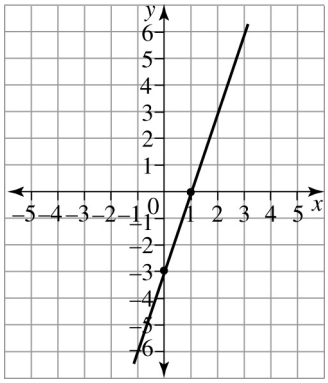
9 D



The y-intercept of this graph is:

A –3
B 0
C 3
D 4

10 A



The equation for this linear graph is:

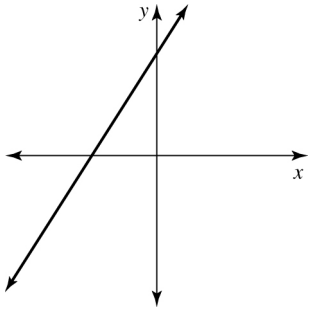
A $y = 3x - 3$
B $y = x - 3$
C $y = 3x - 1$
D $y = -3x - 3$

11 A linear graph with rule $y = 5x - 6$ would have: B

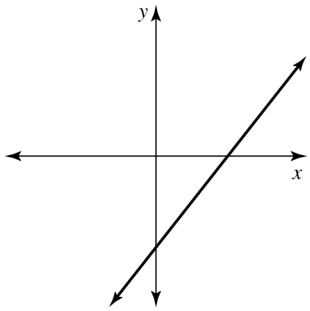
A gradient = 5, y-intercept = 6
B gradient = 5, y-intercept = –6
C gradient = 6, y-intercept = –5
D gradient = 6, y-intercept = 5.

12 Which of the following sketches could be the graph of $y = 4 - 2x$? C

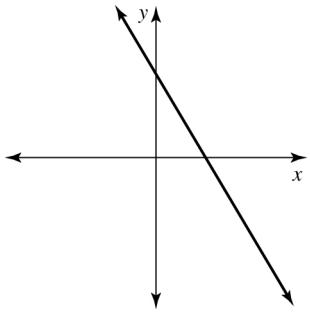
A



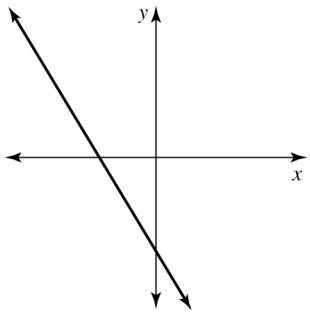
B



C

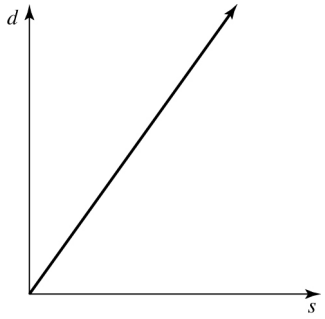


D

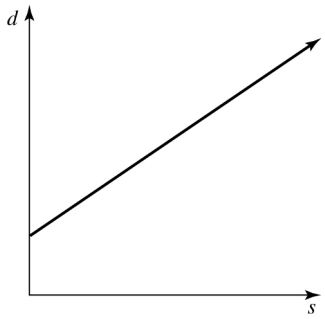


13 The distance that a car travels in one hour varies directly with the speed at which the car is driven. A
Which of the following graphs could show this variation?

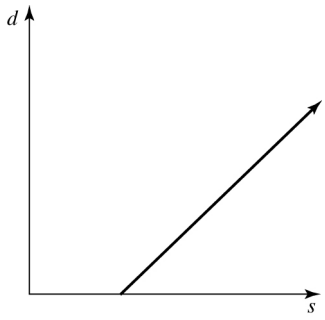
A



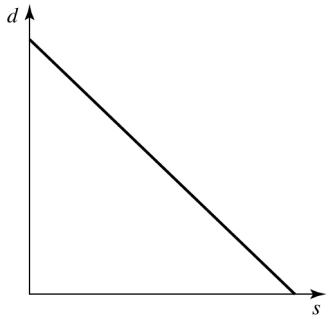
B



C



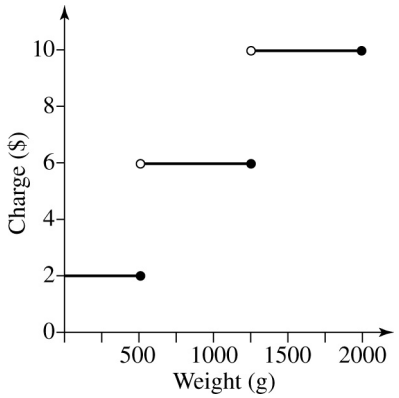
D



14 Two variables a and b are linked in such a way that b is directly proportional to a. When $a = 3$, $b = 6$. The value of a when $b = 10$ is: C

A $\frac{1}{2}$
B 2
C 5
D 6

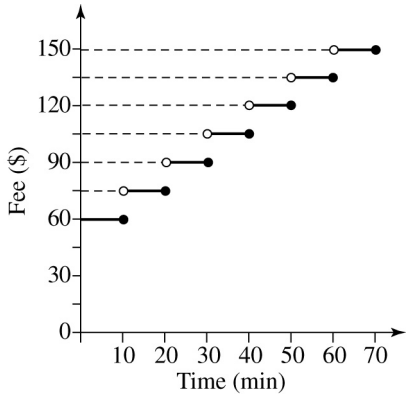
15 This step function shows the postal charges for parcels:



The postal charge for a 1250-g parcel is:

A $2
B $6
C $8
D $10

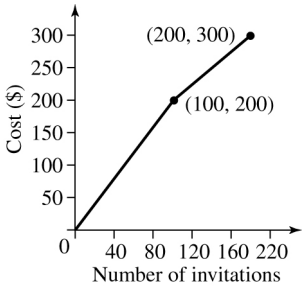
16 An electrician charges a call-out fee plus an amount for each 10 minutes or part thereof needed to complete the job. This graph shows the amount charged for jobs that can take up to 70 minutes. C



The call-out fee is:

A $30
B $40
C $45
D $60

17 The cost of having wedding invitations printed is shown by the piecewise graph below. B



Which of the following statements is incorrect?

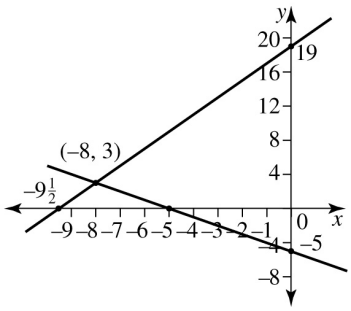
A If less than 100 invitations are purchased, the cost is $2 each.
B If more than 100 invitations are purchased, the cost is $1 each.
C The cost per invitation reduces if more than 100 invitations are printed.
D The first 100 invitations cost $2 each and $1 each thereafter.

18 The graphical solution to the following pair of simultaneous equations is: B

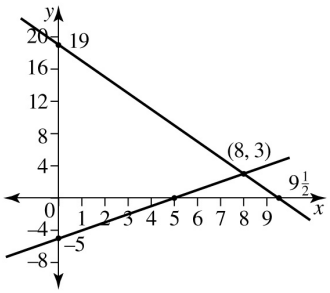
$x - y = 5$

$2x + y = 19$

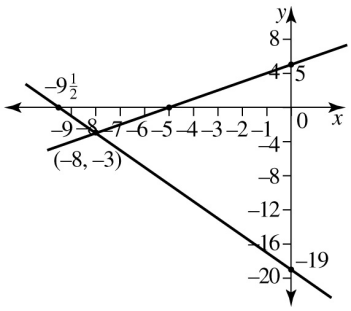
A



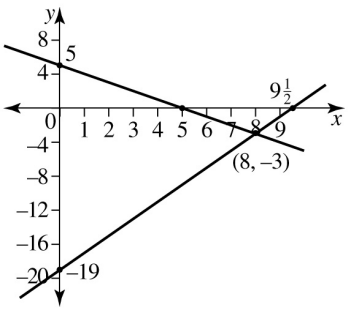
B



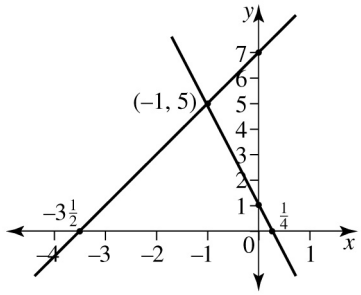
C



D



19 The figure below depicts a graphical solution to which of the following pairs of simultaneous equations? A



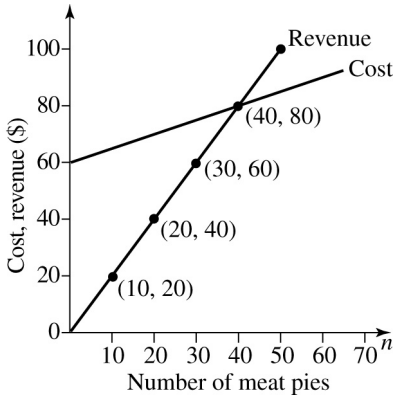
A $y = 1 - 4x$
$y = 2x + 7$

B $y = 1 + 4x$
$y = 2x + 7$

C $y = 1 + 4x$
$y = 2x - 7$

D $y = 1 - 4x$
$y = 2x - 7$

20 This graph shows the relationships for revenue and cost against the number of meat pies sold at a food shop. C



The number of meat pies that need to be sold to break-even is:

A 10
B 20
C 40
D 80